

THE AUSTRIAN BUSINESS CYCLE THEORY
AND ITS IMPLICATIONS FOR
ECONOMIC STABILITY UNDER LAISSEZ FAIRE

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I

It is today almost universally believed that laissez faire capitalism is not the most desirable of social systems. There does exist however a significant minority which takes exception to this view both on economic and moral grounds.

It is not surprising that many members of this minority look to the writings of such prominent advocates of capitalism as Milton Friedman and other economists of the "Chicago" school for a partial economic justification of their views. But perhaps even more than to these economists, they look to the economists of the "Austrian" school for support. Associated with this school are such well known economists as Ludwig von Mises, Friedrich A. Hayek, Lionel Robbins, and Murray N. Rothbard.

The adjective "Austrian" is generally associated with three major contributions to economic theory. First, following the lead of Carl Menger, was the development of the marginal utility analysis and the identification of individual (subjective) valuations as the ultimate source of all economic values. Second was the famous capital theory introduced by Boehm-Bawerk. While these have to some extent been incorporated into the accepted body of economic theory, the third major contribution remains outside of mainstream economic thought;

and the acceptance of its importance most clearly distinguishes present day Austrians from other economists. This contribution is the so-called "monetary overinvestment" theory of the business cycle.

Perhaps of all aspects of economic theory, theory of the nature and causes of business cycles has the most direct import for an evaluation of laissez faire, for it was to the alleged instability of capitalism that the great depression was attributed, providing a justification for the massive and ever expanding government intervention into economic affairs, beginning even before the New Deal and presumably not ending with the wage and price controls of today (1972). Before dismissing the efficacy of laissez faire on economic grounds, one should evaluate the business cycle theory which is offered to counter the arguments of interventionists which today rule supreme. It is towards such an evaluation that this paper aims.

II

The Austrian theory of the business cycle was first presented by Ludwig von Mises in his book *Theorie des Geldes und der Umlaufsmittel* published in 1912. The second edition (1924) of this book was later (1934) translated into English under the title *The Theory of Money and Credit*. Though only a small portion of this book was devoted to discussion of business cycles, it was not until the publication of *Human Action* in 1949 that a fuller English language exposition was to be had from von Mises.

It is not surprising therefore that despite von Mises' originality, it was through the more accessible writings of Friedrich A. Hayek during the 1930's that most English and American economists became aware of this theory. Hayek's first work on business cycle theory was his *Geldtheorie und Konjunkturtheorie* published in 1929 and later (1933) published in English under the title *Monetary Theory and the Trade Cycle*. But before this translation was published, Hayek had already introduced the theory to the English speaking world with the publication in 1931 of what was to become one of the most controversial books on economic theory of the decade, *Prices and Production*. Despite the controversy surrounding this book, the theory never gained wide acceptance before interest

in the theory was lost in the enthusiasm for Keynes' *General Theory* and the "new" economics. A third book by Hayek, *Profits, Interest, and Investment*, comprised of essays and articles revising and clarifying his version of the theory, was published in 1939, but it failed to arouse the interest accorded to his previous book.

When von Mises' *Human Action* was published in 1949, it received relatively little attention, and as it was a general treatise on economics, the portion devoted to discussion of business cycles received correspondingly less. The same can be said for Murray N. Rothbard's presentation of essentially the same theory in his *Man, Economy, and State*, published in 1962.

Applying the theory to explain the depression of the 1930's are Lionel Robbins' *The Great Depression* (1934) and Rothbard's *America's Great Depression* (1963).

III

The wide and broad-based fluctuations which the Austrian theory of the business cycle seeks to explain are a relatively recent phenomenon. Before the industrial revolution and the development of sophisticated capital markets, business cycles as we know them today did not occur. Of course severe fluctuations could and did occur, but they generally took the form of crises and dislocations, caused by obvious and identifiable external shocks, and the recoveries therefrom. Typical causes were wars, plagues, famines, and royal expropriations. The boom phase characteristic of modern cycles was notably absent from these earlier fluctuations, or at least if one terms periods of good harvest as booms, then such booms were not necessarily followed by depressed conditions except in a relative sense.

With the advent of the industrial revolution came fluctuations which had no obvious external causes. Fluctuations seemed to arise from within the workings of the economy itself, and their existence cast doubts about the viability of the capitalist system. Booms characterized by widespread optimism, increasing productive activity, and rising employment were followed by periods when the error of the previous optimism was revealed, giving rise to general pessimism, with

output and employment falling. There were however two regular and recurring features of these fluctuations which indicated that, whatever the verdict on the inherent stability of the capitalist system, the fluctuations had a common origin. One was that during booms prices were generally rising or at least not falling to accommodate rising output, and conversely that during depressions prices were generally falling. The other feature was that the effects of the business cycle were much more pronounced in the capital-goods industries than in those industries producing consumer goods.

Implicit in most business cycle theories is that there exists some fundamental source of business error which accounts for these greater fluctuations in the capital-goods industries and is the immediate cause of the business cycle. During the boom, businessmen miscalculate in such a way as to lead to overinvestment and overexpansion in the capital-goods industries, those industries providing new plant and equipment and the raw materials needed for their construction. When the overexpansion of these industries becomes apparent, a crisis and financial panic may ensue accompanied in due time with widespread unemployment, unused resources, and excess capacity particularly concentrated of course in those industries which had previously overexpanded. A painful period of adjustment or nonadjustment follows. What business cycle theories differ on is the nature and source of such widespread business error.

According to the Austrians, the nature of the error is an overestimation of the resources becoming available for investment in new plant and equipment. More precisely, businessmen believe that more resources will be released from the provision for current consumption (i.e., saved), and will thereby become available for the provision for consumption in the future, than actually are released. If this happens, businessmen will find that fewer resources are available for investment in plant and equipment than were expected, and perhaps some investment projects begun in the past will have to be abandoned. In any case those capital-goods industries which had overestimated the investment in plant and equipment will face less demand for their products than they had anticipated.

This situation has been compared to that of a centralized communistic economy where a five year plan calling for mas-

sive industrialization was ordered by the production czars, but is later abandoned because the necessary sacrifices can not be made or are deemed too great a burden. The original plan may have called for the production of power plants, steel mills, and tractor factories while keeping the production of food, clothing, and other consumer goods with existing primitive methods to an absolute minimum. But since the fruits of industrialization would only become available in the distant future, perhaps only after many five year plans, this would involve enormous sacrifices by the populace in the meantime. If the plan was too ambitious, then the industrialization will have to be interrupted, and the energies devoted to the abandoned projects will be lost.¹

The effects of this sort of miscalculation on the part of production czars would have no parallel in capitalist economies if there were no fundamental source of business miscalculation which affected a large part of the business community.

One possible source of such miscalculation would be a sudden, substantial, and unanticipated decrease in the rate of saving. This would, *ceteris paribus*, decrease the funds available for investment, forcing up interest rates and revealing the error of all calculations assuming a more or less constant rate of saving. Investment activity would have to be curtailed, causing depressed conditions in the capital-goods industries which had anticipated the maintenance of investment. Conceivably this could precipitate a crisis and financial panic leading to a full-fledged depression. The possibility of such a phenomenon under normal circumstances is rather unlikely and historically unimportant, although it may be what one should expect if the end of the world were suddenly to seem imminent, and as a result all saving and provision for the future appeared useless. Of course even if such a shift in the rate of saving were to occur, it could only precipitate half a business cycle without the usual antecedent boom.

A much more important source of miscalculation is a monetary change affecting the loan market, such as a credit expansion accompanied by low interest rates. Such a source as this can not only explain business miscalculation, but can also explain the general movements of prices during the cycle. Easy money and low interest rates stimulate investment in plant and equipment and the expansion of those industries providing these capital goods. However the fact that the in-

creased credit available is created by the banking system and is not supplied by the voluntary savings of income earners sows the seeds of destruction for the boom thus created. The increased investment financed by this "forced" saving first causes the utilization of any previously idle resources. The increased incomes received by the owners of these mobilized resources are then spent largely on consumer goods. Thus when unemployment and excess capacity exist and are general, increased investment and expansion of the capital-goods industries will cause the demand for consumer goods and the output of the consumer-goods industries to increase also. However as the economy approaches full employment of resources, expansion of the capital-goods industries can only take place at the expense of the consumer-goods industries. If credit expansion encourages continued expansion of the capital-goods industries, then the incomes of the owners of the resources bid away from the consumer-goods industries will increase in money terms at the same time the output of consumer goods is being reduced. At this point trouble is unavoidable. The owners of resources will try to use their increased incomes to maintain their consumption at a higher level than the transfer of resources from the consumer-goods industries will permit. This will raise the prices of consumer goods, and the consumer-goods industries will attempt to bid back the resources they had lost. The increased investment and output of the capital-goods industries is now threatened unless enough additional credit is created to keep the capital-goods industries one step ahead of the consumer-goods industries in the bidding for resources. When the credit expansion stops, investment drops and the output of the capital-goods industries can no longer be sold at remunerative prices, forcing production to be cut back and releasing resources faster than they can be absorbed by the consumer-goods industries. The values of those assets which cannot be easily transferred to the production of consumer goods suddenly drop. In the face of falling asset values, an increased desire for liquidity develops and a financial panic may ensue, strengthened of course by any questions raised about the overextension of the banking system. Lack of smooth price adjustment to the now deflationary conditions makes adjustment more difficult, and unemployment of resources may spread even to the consumer-goods industries. This essentially is the business cycle as it is seen

by the Austrian theorists.

IV

There are several tools of analysis used by the Austrians which must be introduced before a more detailed presentation of their business cycle theory can be attempted.

One tool of analysis is the analysis of interest rates similar to that originally developed by the Swedish economist, Knut Wicksell. Essential to this analysis is the distinction made between the "natural" or "pure" rate of interest and the net "money" or "market" rate of interest. Natural interest is simply the discount of future goods. This discount results from the fact that people prefer consumption in the present to consumption in the future. The various discounting valuations or time preferences of individuals will be represented in a single discount rate for the economy as a whole, which will equate the present demand for and provision for consumption in the nearer and remoter futures. This single discount rate will determine whether the present structure of production will be geared to the provision for more or less consumption at various dates in the future. The net market rate of interest differs from the structure of gross market rates by the rate premiums charged for the various anticipated risks and for the expected changes in the value of the monetary unit. Individuals seeking out the highest rates of return will tend to push all net interest and also net profit rates to a single rate which in equilibrium will be the natural one.

If the net market rate is below the natural rate, borrowing for investment will be stimulated so as to make investment in real terms greater than voluntary saving, and forced saving is said to occur. This can happen if new money enters the economy through the loan market either by a credit expansion or by the introduction of new money proper. Conversely if the net money rate is above the natural rate, more will be saved than can be profitably invested at that rate, and some real investment opportunities will be thwarted. This can occur if money leaves the economy through the loan market either by the contraction of credit or by the destruction or hoarding of money which previously would have been offered on the loan market.

Some confusion exists about when forced saving or thwarted investment opportunities arising from natural - net market interest rate differentials actually occur. Can, for example, saving be forced or investment thwarted if the economy has adjusted to a given net rate of money entering or leaving through the loan market? This confusion stems from the fact that, in some presentations, natural - net market interest rate equality was defined so as to require equality in money terms of investment and voluntary saving.² For our purposes we shall state that no saving is forced, no investment is thwarted, and no natural - net market interest rate differentials exist if the money entering or leaving the economy through the loan market is already anticipated and adjusted for in the actions of the populace.

Another tool used in analyzing the business cycle is the analysis of the structure of production. Production is visualized as divided into many stages with different time dimensions. The earliest stages are those the products of which are to contribute to the production of those consumer goods which will become available in the most distant future of any consumer goods for which any provision is currently being made. The latest stages are those which put the finishing touches on the goods becoming available for current consumption, and the intermediate stages are those intending to contribute to the production of those consumer goods which will become available after those in the latest stages but before those being provided for in the earliest stages. The products of the earlier stages then are temporally further removed from consumption than those of the later stages. Goods produced in the earliest or first stage of any production process are produced only with what the Austrians term "original" means of production or rather only with land and labor. (Land as an original means of production does not mean "pure" land exclusive of all past improvements such as the clearing of land, the digging of mines, and even the construction of roads, buildings, and machines to the extent that such improvements are permanent. To the extent that such improvements have to be maintained or replaced, they retain their capital character. The important thing in the present structure of production is not past history but the present plans and provisions for consumption in the nearer and remoter futures.) Goods produced in the second stage are produced with original means and the

product of the first stage; goods produced in the third stage are produced with original means and the product of the second stage, and so forth. In other words, except for the first stage, the product of every stage is produced with original means of production and the product of the previous stage; and if one traces the origin of any good back to its first stage, the product of every stage is produced ultimately only with original means. The product of a stage might only be a service which renders the product of the previous stage more valuable, or it may be a physical good which by passing through later stages is rendered more valuable. A physical good may eventually be transformed into a consumer good, or it may become a capital good which is consumed in the production process. The consumer good itself of course might only be a service.

Corresponding to different stages of production, in the terminology of the Austrians, are goods of different orders. First order goods are goods ready for current consumption. Second order goods are those used directly in the production of first order goods, third order in the production of second order goods, and so on. First order goods, then, are produced in the last stage of production, and the highest order goods are produced in the first stage of any production process.

At any point in time, the number and forms of the various stages form the structure of production. A hypothetical structure of production representing an economy in equilibrium is illustrated by Diagram #1.³

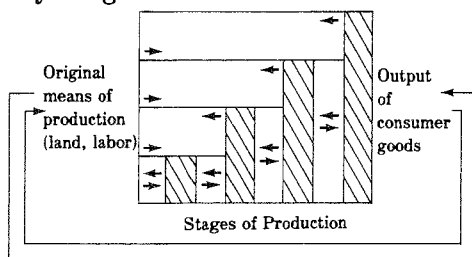


DIAGRAM #1

The diagram shows an economy with four stages of production, the value of each indicated by the shaded areas with the earlier stages on the left. Each stage represents a different industry, and only one consumer good is produced. No loan market exists, and all saving and investment are done by entrepreneurs. Original means of production are applied in the

first stage to the production of goods later to be used by the industry representing the second stage. This industry uses the product previously produced in the first stage in conjunction with original means to produce goods to be used by the industry representing the third stage, and so on until in the fourth stage consumer goods are produced to be used by the owners of original means of production. Money exchanged against goods and services flows in the opposite direction through the stages of production. Revenue from the sale of the consumer good is used to compensate the original means used in the final stage and to purchase the product of the previous stage. The industry representing the previous stage does likewise with its revenue and so on until all revenues accrue as income to the owners of original means of production. The flow of goods and services is indicated by the arrows pointing right and the flow of money exchanged against them is indicated by the arrows pointing left. In this equilibrium situation there exists no net savings or investment, and the output of consumer goods equals the net incomes accruing to the owners of original means.

An example might make the structure of production easier to visualize. Suppose the consumer good is bread, and to simplify matters, suppose also that no maintenance is required for tools and equipment. Then the first stage of production might be the mining of potash to be used as a fertilizer in the growing of wheat. The mine owners will sell their potash to the wheat farmers in the second stage. The wheat farmers will in turn sell their wheat to the millers in the third stage, who will sell their flour to the bakers in the fourth stage, who will sell their bread to the miners, farmers, and millers.

In our structure of production, the value of each successive stage of production is greater than that of the preceding stage not only because of the value added in that stage, but also because its product is discounted less by virtue of its being temporally closer to consumption. According to the Austrians, an economy's rate of discount determines its structure of production. Suppose the entrepreneurs of our economy change their time preferences so as to discount future goods less than they did before. Suppose also that mere stockpiling of consumer goods will not satisfy their increased desires for future consumption. Then the new lower entrepreneurial rate

of discount will mean that the entrepreneurs will now save and invest a larger portion of their incomes so as to be able to increase their consumption in the future. But since resources are presently fully employed, output and consumption cannot be increased in the future with the existing structure and methods of production. Output and consumption can only be increased if a new, more productive structure of production can be adopted. If a more productive structure is available, it will tend to be a longer one involving more and temporally more distant stages of production, both because lower rates of discount permit longer processes of production and because more productive and more capitalistic processes are generally more roundabout and involve more stages. In the absence of technological change, a more productive but shorter structure of production cannot be adopted, for if such a structure were available, it would have been adopted even before the change in time preferences. Let us assume that a longer, more productive structure of production is available, and that it is consistent with the new time preferences. A hypothetical equilibrium structure corresponding to this new lower rate of discount is illustrated by Diagram #2.

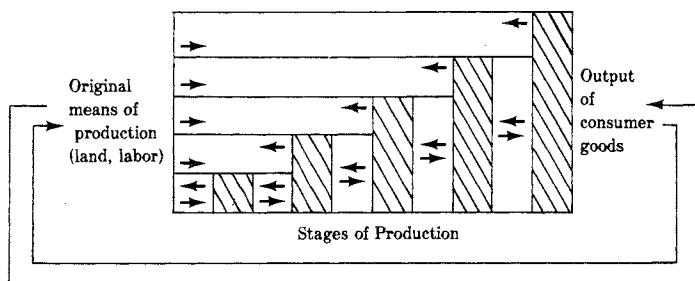


DIAGRAM #2

With the time spans between and within stages assumed to be unchanged, the new longer structure of production is represented by five stages compared to the previous four. The lower rate of discount also means that the interstage price differentials are relatively smaller than previously. The effect of the lower rate of discount then is to make the structure of production longer and, in terms of interstage price differentials, narrower. (In the sense that goods of a higher order are produced, the structure is also higher.) If the total money value of all stages has not changed, then the money value of the earlier and later stages will be more and less res-

pectively. In this case it should be recognized that, although the money value of the output of consumer goods is less than previously, the real output of consumer goods is greater, for otherwise the new structure of production would not have been adopted.

To continue our example of the production of bread. Suppose that the entrepreneurs who change their time preferences see opportunities to invest their increased savings and divert resources into the production of new labor saving farm machinery, and that this involves the creation of two new industries: one constructing the machines and the other mining the metal to make them out of. The resulting greater productivity of the wheat farmers will release the resources needed by the other industries to contribute to the increased output of bread. Of course when the new equilibrium is reached, no net saving or investment again exists, and the production of new farm machines only serves to replace those old ones wearing out. It should be noted that, in the new structure of production, the industry constructing the farm machines occupies the same stage as the industry mining potash because they both sell to the same stage. The only entirely new stage is occupied by the industry mining the metal to be used by the industry constructing the farm machines.

This analysis of the structure of production is meant only as a conceptual aid, and no attempt is made or could be made to classify products, in any sort of cardinal order, according to their stages in the structure of production. The structure of production of any actual economy has many stages with complex interrelationships. For example, the same physical good or service may be used in several stages of a production process or used in different stages of production processes leading ultimately to the creation of different consumer goods, which may themselves require different numbers of stages of various lengths. Salt is used in many different industrial processes as well as on the dinner table. The mining of salt therefore cannot be assigned to any one stage of production. Also any production process could theoretically be divided into a virtually infinite number of minute stages. A modern assembly line is an easily visualized example of goods moving through many stages within a single firm.

Nevertheless, production in many industries or groups of industries may be identified as belonging more or less to earl-

ier or later stages of production. Broadly speaking, the industries representing the earlier stages are industries providing raw materials for other early stages, industries constructing heavy capital equipment and machinery for use in later stages, and industries constructing and maintaining structures to house the manufacturing and management of the various stages. The consumer-goods manufacturing and retailing industries represent the later stages of production, and somewhat earlier are the industries providing the raw materials and lighter equipment which they use.

As may already be apparent, the important distinction between earlier and later stages of production is that their products are not equally distant from consumption and thus their relative values are influenced by time preferences. Another factor determining a good's temporal distance from consumption, besides its order, is its durability. The more durable a good is, the more distant it is from consumption, for the services which any durable good provides are distributed over a relatively long period of time. A durable good is not consumed until its contribution to consumption ceases or rather until it wears out and/or is depreciated to its scrap value. A capital good then might be distant from consumption not only by virtue of its being of a high order, but also by virtue of its being relatively durable.

One last tool of analysis sometimes used is that of the "Ricardo effect" introduced by Hayek. According to this analysis, the change in a firm's profit rates due to changes in selling prices or in prices paid to factors of production will not be unaffected by the firm's capital intensity, or rather by the length of time it takes for the capital invested to turn over. Perhaps this can best be illustrated by a table similar to one used by Hayek.⁴

	Money capital invested for				
	2 years	1 year	6 months	3 months	1 month
Initial amount of profit on each turnover in per cent.	12	6	3	1½	½
	(all corresponding to 6 per cent per annum)				
Add 2 per cent additional profit on each turnover due to rise of price of product.	14	8	5	3½	2½
Resulting profit rate per annum (compound interest neglected).	7	8	10	14	30

A rise in product prices of 2 per cent will, *ceteris paribus*, increase the amount of profit on each sale by 2 per cent irrespective of the length of time it takes for the revenues thus obtained to yield a return on the capital invested. But since the amount of profit on each sale must, *ceteris paribus*, be smaller for enterprises with higher rates of turnover if all enterprises are to receive equivalent per annum rates of profit, an increase in the amount of profit on all sales by an equal amount will increase the per annum rates of profit for enterprises with higher rates, or shorter periods, of turnover more than for enterprises with lower rates, or longer periods, of turnover for the capital invested. This is shown in the table for investments in which capital turns over in different lengths of time. Thus an increase in product prices or conversely a general fall in the prices of factors of production will provide an incentive to shift to processes in which capital invested turns over more rapidly. For a firm this will mean more labor intensive use of existing machinery, and a shift in purchases to cheaper, less durable machinery and to machinery which takes less time and fewer stages to produce. For an economy as a whole, this will mean a shift to a shorter, less capital intensive structure of production. Of course a fall in product prices or a general rise in the prices of factors of production will have the opposite effect of lowering the per annum rates of profit more for enterprises with high rates of turnover, and will, for the economy as a whole, encourage a shift to a longer, more capital intensive structure of production.

V

Having presented these tools of analysis, we can now take a closer look at the business cycle of Austrian Theory.

Let us assume an economy in the depths of a depression. Unemployment and unused resources are widespread but are particularly concentrated in those industries encompassing the earlier stages and producing higher order goods, i.e., the capital-goods industries. Furthermore the depression so far has been marked by massive deflation and unprecedented demands for liquidity. But as the depression advanced to its present stage, individuals, firms, and banks became increasingly successful in their attempt to hold money balances, and as their money balances grew and as prices fell, the incentive for continued hoarding tapered off. Thus the contraction of total monetary demand, or of MV in the notation of the quan-

tity theorists, has finally come to an end. Conditions are now ripe for a revival of trade. As time progresses and nothing triggers a new round of bank runs or some other deflationary phenomenon, confidence that the deflationary panic has finally ended begins to mount. Hoarding will now no longer seem rational, and the dismantling of these hoards, or rather dishoarding, will begin. The previous contraction of total monetary demand will be reversed into an expansion.

If the banking system does not participate in the dishoarding, then the fate of the revival will be somewhat uncertain. If enough adjustment of prices (including wages) had been made during the depression, then the increase in monetary demand resulting from the dishoarding may be such as to permit the employment of all existing unused resources (including labor) with no further general fall in their prices. More likely is that further downward price adjustments will still be necessary, although in extreme cases prices may be so low and accumulated hoards so great that upward price adjustments will be called for. If further downward price adjustments are required and are effectively resisted, the revival will not be completed. But in any case, unless time preferences have changed so as to favor the investment-consumption ratio and the lengthened structure of production of the previous boom, relative price changes and/or movements of resources vis-a-vis the earlier and later stages of production will still be necessary if maximum reemployment of unused resources is to take place. In other words the prices of higher order goods may still have to fall relative to the prices of lower order goods, and resources will have to be transferred away from the industries representing the earlier stages and toward the industries representing the later stages. It may be however that any such movements of prices and resources can be postponed to some extent for the duration of the dishoarding process if those dishoarding spend their accumulated hoards relatively more on investment than the economy as a whole is willing to spend. This is likely to be the case if, as is generally believed, hoarding takes place more at the expense of investment than of consumption.

It is however extremely unlikely that the banking system will remain neutral in the dishoarding process. As the revival gets under way, the reserves of banks will be high relative to the now lower demands for redemption, and the banks will be

encouraged to dishoard, or rather to expand credit. Also the return of confidence in the banks will lead to increased reserves as people and firms redeposit their money and thus further encourage credit expansion. More importantly the government through the central banking authority will probably be encouraging credit expansion by such measures as the lowering of required reserve ratios, lowering rediscount rates, and the purchasing of various obligations, such as government bonds, from the banks. The government may also directly introduce money into the economy so as to lower interest rates and to favor investment by purchasing various obligations from non-bank institutions and from individuals.

Since the credit expansion will almost surely not be adjusted for in the actions and plans of the populace, it will force the net market rate of interest below the natural rate and probably also cause an underestimation of the rate premiums which should be charged to compensate for future changes in the value of money. If there is no realization that a general expansion of credit is really underway or if the effect of a credit expansion on the value of money is not generally understood, the latter possibility may be of no small import. In any case the real rate of return on loans will be reduced below the natural rate and forced saving will occur. Of course underestimation of the risk premiums which would be charged or too liberal rationing of credit may similarly indicate forced saving.

The low interest rates of the credit expansion will attempt to act on the structure of production like a lowering of the natural rate of interest. In other words the low interest rates will stimulate lengthening and narrowing the structure of production as provision for more and more distant future consumption is encouraged.

Some tendency to lengthen the structure of production may have already existed due to the working of the Ricardo effect. Inadequate wage adjustment relative to falling product prices during the panic induced deflation may have produced some encouragement to shift to a longer structure of production, but this would probably have been more than offset by the relatively high interest rates of the depression. (Interest rates may be low absolutely during the depression, but are probably high relative to those needed to maintain the investment and the lengthened structure of production of the previous boom. This may be due to the inadequacy of negative interest rate

premiums adjusting for the rising value of the monetary unit and a panic induced reluctance to incur debt for the purpose of investing in a seemingly highly uncertain future.) As long as widespread unemployment of resources still exists during the recovery, the Ricardo effect will probably still encourage a lengthening of the production structure as there will be little upward pressure on product prices and an easing of downward pressures on wage rates. The rising profit rates characteristic of the recovery will more likely be due to increasing volume than to the rising of prices received from the sale of goods and services relative to the prices paid for those factors used in their production. The Ricardo effect then may work for some time in conjunction with the ensuing credit expansion and low interest rates to lengthen the structure of production.

As the credit expansion gets under way, the increased credit available will be used to finance the holding of larger inventories such as the all-round increase in trade will make desirable and to finance capital improvements of all sorts. Industries in all stages of the structure of production will be encouraged to expand their operations with the use of borrowed funds until their marginal rates of profits approach the now low rates of interest. To accomplish this, industry will begin reemploying idle labor and capital equipment to increase current output and will begin investing in new plant and equipment so as to increase future capacity. Those industries in the earlier stages providing the material, plant, and equipment used in the later stages will be doubly stimulated by the expansion of credit, directly by the low interest rates and indirectly by the increased demand of later stages. The stimulation provided by the low interest rates therefore will have a magnified effect on the earlier stages of the production structure. This magnified stimulation of the earlier stages will produce a tendency to narrow interstage price differentials as the products of earlier stages, or rather the higher order goods, have their prices bid up or at least supported by the increased demand of later stages. The credit expansion will also tend to act on the structure of production in another way, the result of the fact that some new kinds of investment projects previously unprofitable will be made profitable by the low interest rates. The adoption of new processes of production, perhaps leading to the production of new types of producer and consu-

mer goods, will be stimulated, and probably the majority of such processes will tend to be of longer duration or lead to the production of goods temporally more distant from consumption. In this latter respect the Ricardo effect will probably be of some help. This provision for more distant future consumption, through the adoption of longer techniques of production and through the production of more durable goods, will give rise to a more lengthy structure of production involving the use of more and earlier stages of production. In sum then the credit expansion and the resulting low interest rates will stimulate greater investment and will do so in such a way as to encourage a more lengthy and more top heavy (in the sense that relatively more higher order goods are produced) structure of production.

With credit expanding, the pace of the recovery will be substantially quickened. This will not only be because total monetary demand will be increasing at a faster clip, but also because low interest rates will be stimulating relatively more those industries of the earlier stages, where unemployed resources can be mobilized easily and without the discouragement of having to be bid away from alternative uses. But the effect of newly created credit on the economy will not end simply with the mobilizing of idle resources. The owners of the mobilized resources (including laborers) will now have increased incomes at their disposal, and how they dispose of them will of course affect the economy and the course of the revival. Presumably a portion of these incomes will be saved and invested; and to the extent that they are, the credit expansion will create the real savings needed to finance continuation of the investment originally financed by the creation of credit. But no doubt the greater portion of the incomes created by credit expansion will be spent on consumption. The resulting increase in consumption expenditures will stimulate the later stages of production, and as long as continued creation of credit maintains low interest rates and as long as consumption expenditure is expected to be maintained permanently at higher levels, this stimulation will be magnified in its effects as it is relayed back to earlier stages in the form of increased demand for their products. In other words the later stages will again be stimulated to invest in material, plant, and equipment as well as labor for the purpose of increasing both present and future output and will in so doing further

stimulate the earlier stages. This added stimulation of investment and of the earlier stages will create additional demands for borrowable funds and thus will permit additional credit to be created without the disincentive of further lowering interest rates and of perhaps thus increasing awareness of the credit expansion's existence. While the recovery is still relatively young, then, the secondary effects of the credit expansion might only serve to further the expansion of credit and the pace of the recovery.

But as the economic expansion progresses and as the structure of production assumes a shape reminiscent of the previous boom, the supply of still unemployed resources will begin to dwindle, and continued expansion of credit will no longer be able to induce continued expansion of output. Expansion of credit will lead more and more to increases in prices and less and less to increases in output and employment.

If the expansion of credit were to stop and thus halt the development of inflationary pressures, other unpleasant consequences would follow instead. Unless, as is unlikely, time preferences change so as to favor the investment-consumption ratio and the lengthened structure of production which the credit expansion has fostered, the voluntary savings of income earners will be insufficient to maintain them. Still increasing consumption expenditure and higher interest rates resulting from the reduced supply of loanable funds will force a lowering of the investment-consumption ratio and a shortening of the structure of production. But such a change in the structure of production may require substantial frictional unemployment during the transition process as resources would have to be transferred from the earlier to the later stages and as the prices of higher order goods would have to fall relative to those of lower order goods. To avoid this result, the government may go to great lengths to insure that the expansion of credit does not end, let alone force such a development in the interests of avoiding inflation.

Let us assume then that the credit expansion continues unabated. If credit can be created on such a scale as to raise investment to still greater levels and to further lengthen the structure of production, a situation impossible to maintain will soon develop. As resources are now relatively scarce, the increased credit available will have to be used largely to bid

away resources from the consumer-goods industries if investment and the earlier stages are to be expanded. But if this happens, the owners of the transferred resources (especially laborers) will attempt to use their increased incomes to increase consumption while the transfer itself will reduce the available supply of consumer goods. As a result the prices of consumer goods will be bid up even higher than they otherwise would have been, and the consumer-goods industries will be stimulated by higher profit margins to bid back the lost resources. The lengthened structure of production will now become progressively more difficult to maintain, requiring ever increasing amounts of additional credit to keep the earlier stages one step ahead of the later stages in the competition for resources.

But there is another consideration which would indicate that no amount of additional expansion of credit could long even maintain the lengthened structure of production, let alone lengthen it still further. As the owners of resources mobilized by the credit expansion spend their incomes on consumption, the profit margins of the consumer-goods industries will be increasing. However unlike previously when unemployed resources were still widespread, this stimulation of the consumer-goods industries and the later stages will be more diminished than magnified as it is relayed back to the earlier stages. This will be due to the increasing importance of the Ricardo effect. As the prices of consumer goods are bid up relative to factor prices, the Ricardo effect will work more and more to shorten rather than to lengthen the structure of production. This shortening will come as the consumer-goods industries change the mix of products they purchase from the preceding stages. They will now spend more on purchasing materials to increase output in the near future and less on plant and equipment to increase output in the more distant future. Those expenditures for plant and equipment which do take place will tend to be for shorter term capital improvements involving less durable and less complex plant and equipment which can be produced in fewer stages. In sum, increasing consumption expenditure will through the Ricardo effect stimulate more and more just those stages immediately preceding the consumer-goods industries and less and less the economy's earlier stages, and will in so doing shorten the structure of production. If, as we have assumed, the credit expansion is continuing unabated, the consumer-goods industries and the later

stages will be in the best position to obtain the increased funds. But they will no longer use the funds to invest in long term capital improvements and to thus stimulate the earlier stages, but will now use the funds to bid away material and labor from the earlier stages so as to be able to increase the output of consumer goods in the nearest possible future. The continued creation of credit will now actually serve to lower the real investment-consumption ratio as the increased funds will be used to prevent provision for relatively distant future consumption so as to increase provision for current and relatively nearer future consumption. The existence of continued credit expansion, then, cannot circumvent the pressures to shorten the structure of production and to lower the investment-consumption ratio.

One more factor may add to these pressures to shorten the structure of production. As income earners face higher prices for consumption goods, they may spend larger portions of their incomes on maintaining their desired levels of consumption. If they do so, interest rates may be adversely affected as higher net market interest rates and higher rate premiums adjusting for the falling value of money are demanded. Higher interest rates will further hurt long term investment and the earlier stages as the lower supply of credit will be rationed increasingly towards the consumer-goods industries which are being influenced by the Ricardo effect, for only they will be able to afford the higher interest rates.

If the banks try to offset this development by further increasing credit, the likelihood of financial panic will be greatly increased. As the expansion of credit reaches ever greater heights, fears about the ever more precarious reserve positions of the banks will mount, and almost anything may be able to trigger a series of bank runs and thus force the contraction of credit. As the economy approaches full employment, there will be no lack of possible triggers. A rash of corporate bankruptcies in the higher order capital-goods industries, such as the Ricardo effect may cause, might be such a trigger. Or perhaps the dramatic failure of enterprises begun with or heavily dependent upon borrowed funds, enterprises which as factor prices and interest rates are being bid up are unable to raise at profitable rates the additional funds necessary to continue. This latter possibility may be especially important if the credit expansion is already being slowed or halted.

In any case, let us assume that runs on banks do begin. What otherwise would only have been a relatively mild setback due to a structural readjustment of production will now develop into a full-fledged depression. Once begun, the running on banks may mushroom as the early failure of some banks will cause questions to be raised about the ability of the remaining banks to honor their debts. In the face of ensuing and/or threatened runs, banks will be forced to contract credit. This will be done by calling those loans which are on call and by not reloaning as outstanding loans are repayed. As individuals and nonbanking institutions hoard the money they withdraw and as banks are forced to hoard by contracting credit, the net market rate of interest will be forced above the natural rate, further discouraging investment and working to the detriment of the earlier stages. Any further bankruptcies that this and the resulting deflation may cause will encourage a new round of bank runs, and a spiraling deflation may develop. If the lowering of important product or factor prices (e.g., wage rates) is successfully resisted, unemployment will no longer be frictional and may even be extended to the consumer-goods industries. If the deflationary pressures are strong and if they are fiercely resisted, the unemployment of resources it will create may be massive and quite prolonged.

This, in somewhat more detail, is the Austrian theory of the business cycle.

VI

In 1943 Ludwig von Mises wrote the following:

In the thirty-one years which have passed since the first edition of my *Theory of Money and Credit* was published no tenable argument has been raised against the validity of what is commonly called the "Austrian" theory of the [business] cycle. It was easy to prove that all objections brought forward were either futile or founded on a mistaken interpretation of the doctrine attacked.⁵

It is my belief that the passage of twenty-nine more years has not altered the truth of von Mises' pronouncement. In fact, to my knowledge, no new objections have been brought against the theory during the interim. This is, no doubt, partly due to the decline of interest in business cycle theory after World War II. Since most countries have abandoned the gold standard and taken to insuring bank deposits,

deflationary panics have had little chance of developing and of thus precipitating massive depressions. As a result, the need to explain and find cures for the business cycle no longer seemed as pressing as it once did. Nevertheless, business cycles have continued, even though on a smaller scale, as recent years have amply demonstrated. The need therefore for a proper business cycle theory still exists, especially if present "countercyclical" policies are to be evaluated.

But it is not my intention here to debate the subtleties of this or any other theory of the business cycle. I wish only to stress what I consider the most important contribution of the Austrian theorists in this area. This is the correct identification of monetary disturbances, such as the expansion or contraction of credit, as the *sine qua non* of the business cycle. Various nonmonetary theories have been brought forth to explain the phenomenon of the business cycle. For example, discontinuities in the number and importance of inventions or innovations have been accused of stimulating cyclical swings in investment activity. Likewise, relatively small changes in consumption expenditure have been held to be responsible, through the working of the acceleration principle, for large cyclical changes in investment expenditure. But these and all other nonmonetary theories must, as Austrian theorists have pointed out, logically assume the coexistence of monetary changes with their more explicitly identified "causes".⁶ But given this, the superiority of the Austrian theory becomes apparent, for it alone can claim to have identified a cause which is both sufficient and necessary.

VII

It is evident then that the question of economic stability under *laissez faire* reduces to a question of monetary stability. It is also evident that the question of monetary stability reduces to a question of the existence of credit expansions and contractions, for presumably the cyclical changes in hoarding are largely induced by the fluctuations in confidence which the changes in credit bring about. But since the accepted definitions of *laissez faire* do not specify the nature of the monetary framework, the relevant question becomes this: can a *laissez faire* or free market society be organized so as to prevent the monetary disturbances such as can result from changes in

credit? I will consider two proposals for such an organization offered by Austrian economists as well as third similar to one offered by Milton Friedman.

According to Ludwig von Mises, the government should simply refrain from instigating credit expansions for the purpose of fostering easy money and low interest rates. To tie the hands of government in this vital area, he proposes that central banks be abolished and that a full gold standard be allowed to rule. Without a central bank and the resulting pyramiding of reserves, he argues, a credit expansion would never be able to proceed fast enough to cause any maladjustments in the structure of production. Those banks which attempted to expand credit would soon find that their reserves were being drawn down, and they would move to reverse the situation for fear that otherwise public confidence would be lost and bankruptcy would result.⁷

Another Austrian economist, Murray Rothbard, also recommends the adoption of a full gold standard but with the requirement that all bank deposits be backed 100% by gold. Anything less, he claims, would be fraudulent. This would of course make credit expansion or contraction impossible, and all investment would have to be provided for out of voluntary saving.⁸

Whatever the merits of these two proposals, they share a common defect. There is no provision for increases in the money supply. This would be no problem except that in an expanding economy prices would have to be falling. But with smooth price adjustment even this would be no problem except that gross market rates of interest would have to embody negative interest rate premiums adjusting for the rising value of money. This is the crux of the problem. A strongly negative interest rate premium may attempt to push the gross market rates of interest to zero or below. But it is clearly impossible for it to succeed, as people will not be motivated to lend out money at a rate approaching zero or below. There may develop then a situation where the Pigou effect takes command and forces a lowering of the economy's investment-consumption ratio below that which is desired by the populace. Whether this situation would ever develop is of course an empirical matter, but nevertheless the potential would exist under the conditions proposed by Rothbard and von Mises.

The solution, I think, is something akin to the proposal out-

lined by Milton Friedman in his *A Program for Monetary Stability*. In that work he suggest that present fiat currencies be maintained as such, but with the stipulations that a 100% reserve requirement on deposits be imposed and that the money supply be increased at some fixed rate to be set between 3 and 5 per cent per year. This would probably require continual governmental coercion to insure against re-emergence, in private transactions, of a gold standard, but given the choice between the "right" to own gold and the "right" to benefit from a populace's high investment-consumption preferences unobstructed by a Pigou effect, the choice seems clear. The additional money entering the economy every year would insure against the development of strong deflationary pressures and against the emergence of high negative interest rate premiums. The existence of a 100% reserve requirement would prevent any expansion or contraction of credit. But if such a proposal were adopted, it would be necessary to stipulate that the new money entering the economy enter in a relatively constant fashion. It could not enter now through the loan market in the form of bond purchases and now through government expenditures without inducing the maladjustments in the structure of production we have been analyzing. An ideal free market situation would be if government expenditures could be reduced to a level where they could be financed entirely out of the newly created money. This ideal solution would eliminate not only the business cycle but also the need for an Internal Revenue Service!

¹ Gottfried Haberler, *Prosperity and Depression: A Theoretical Analysis of Cyclical Movements* (n.p., 1941), pp. 45-46.

² E.g., in Friedrich A. Hayek, *Prices and Production* (London, 1935).

³ This and the following diagram are adapted from similar diagrams used by Hayek (*ibid.*, pp. 39-61) and Murray N. Rothbard, *Man, Economy, and State: A Treatise on Economic Principles* (Los Angeles, 1970), pp. 286, 314, and 472.

⁴ Friedrich A. Hayek, *Profits, Interest and Investment: And Other Essays on the Theory of Industrial Fluctuations* (New York, 1969), p. 9. On the Ricardo effect, see also Friedrich A. Hayek, "The Ricardo Effect," *Economica*, IX, No. 34 (new series; May, 1942), 127-152.

⁵ "Elastic Expectations' and the Austrian Theory of the Trade Cycle,"

Economica, X, No. 39 (new series; August, 1943), 251.

⁶See Ludwig von Mises, *Human Action: A Treatise on Economics* (Chicago, 1966), pp. 554-555 and 580-586.

⁷*Ibid.*, pp. 434-448 and 471-478; *The Theory of Money and Credit* (New York, 1971), pp. 395-399 and 413-457.

⁸von Mises, *Human Action*, pp. 850-879; Murray N. Rothbard, *America's Great Depression* (Los Angeles, 1972), pp. 29-33.

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